

## Claims

1. Method for decoding a data sequence which consists of K information bits and has been encoded with the aid of a binary convolutional code,
  - wherein, on a trellis diagram having trellis segments, in a first operation metrics values of all trellis segments are calculated precisely for a forward direction and for a backward direction using a MaxLogMAP algorithm,
  - wherein a number of trellis segments are selected as interpolation nodes of the first operation and associated metrics values are stored in a first memory level,
  - wherein with  $1 < i \leq n$  in an  $i$ -th operation metrics values of trellis segments positioned between the interpolation nodes of an  $i-1$ -th operation are calculated for both directions, stored metrics values of interpolation nodes of the  $i-1$ -th operation being used to calculate the metrics values of the  $i$ -th operation,
  - wherein a number of trellis segments are selected as interpolation nodes of the  $i$ -th operation and associated metrics values are stored in an  $i$ -th memory level,
  - wherein the metrics value calculation and storage based on the interpolation nodes takes place  $n$  times until the metrics value calculations of the forward direction and of the backward direction meet in one trellis segment and a decision process is then carried out to calculate soft output values for decoding purposes.
2. Method according to Claim 1, wherein for each direction of the first memory level a memory depth of  $\delta_1$  is assigned, the respective metrics values of each  $K/\delta_1$ -th trellis segment being stored in the first memory level.
3. Method according to Claim 1 or 2, wherein for each direction of the  $i$ -th memory level a memory depth of  $\delta_i$  is assigned, the re-

spective metrics values of each  $K/\delta_1/\dots/\delta_i$ -th trellis segment being stored in the  $i$ -th memory level.

4. Method according to one of the preceding claims, wherein a de-  
5       layed decision phase is used for the calculation of the soft out-  
      put values in the case of terminated codes.
5. Method according to one of the preceding claims, wherein the de-  
      coding is carried out on precisely one application-specific mod-  
10       ule.